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tangent-screw by a clutch which is made to slide in or out of contact; the observer, while in his seat, being enabled to turn the tangent-screw by means of a long-handled key, and thus gradually move the telescope without the clock.

The dome of the observatory stands on a circular frame of rollers on the wall, and has a series of iron pins projecting inwards to serve as a rack. A lever hanging on a pin in the wall will always engage any one of the rack pins that may be over it, and so move the dome till its opening is brought to the right place. The opening is covered by a shutter made to slide, one way to open and the other way to shut, by means of cords passing over two pulleys.

No. VII.

SETTER FOR A CARRIAGE.

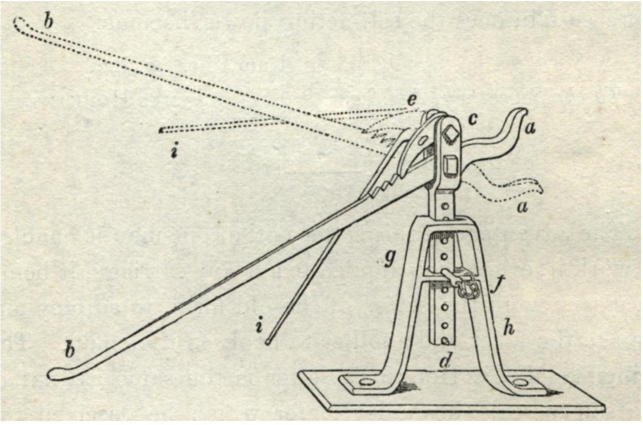
The Sum of FIVE POUNDS was presented to Mr. JAMES HOPKINS, Globe Brewery, King's Road, Horsley Down, for his CARRIAGE SETTER; a Model of which has been placed in the Society's Repository.

Globe Brewery, King's Row, Horsley Down,
SIR, *9th November*, 1839.

I HAVE invented a very great improvement on *Carriage Setters*, and thinking the Society would notice it, I have been induced to send you a model of it for their kind inspection: for notwithstanding the power, ease, and safety gained by this improvement, it has decidedly another great advantage in distributing the weight, so that each portion of its base has an equal share of it, thereby preventing the Setter from being liable to upset, as is too frequently the case with those that are secured by chain and hook; which not only are in frequent danger of upsetting, but also greatly endanger the carriage and the person using it,—an accident which cannot occur by Hopkins's Improved Setter, as the more it is used the more certain does the self-acting power become.

I am, Sir, &c. &c.
To the Secretary, &c. &c. James Hopkins.

The advantage of this setter is that one man is enabled to work it, even when applied to a heavy carriage, it being necessary, with the setter of the old form, to employ one man to the lever and another to hook on the chain. The principle of Mr. Hopkins's setter is the same as that of the safety scale-beam lever, for which he received the Society's Silver Isis Medal last session. The setter is made of iron; *a b* the lever, mounted in the forked standard *c d*, with a click *e* above it, to drop into the notches on the lever; *i*, the light handle of the click, by means of which it may be raised, out of any notch in which it happens to be, by the man who works the rack. The setter is placed, as usual, beneath the axle, the lever-bar being raised and the click dropping into the notch farthest from the fulcrum. As the long end *b* of the lever is brought down, the short end *a* raises the axle from the ground, the click dropping into one notch after another of the rack, and retaining the lever in the required position. A series of holes is made in the standard *c d*, for the purpose of adjusting its height to suit any particular carriage, a pin at *f* being inserted in the proper hole for the purpose of supporting it on the cross-bar of the frame *g h*. As this pin and the bar bear the whole weight of the carriage, they are made proportionably strong. A smaller pin is fixed in the lowest hole at *d*, to prevent the standard being pulled quite out of the frame.



When the lever arm *b* is to be raised, as shewn by the dotted lines, either preparatory to lifting an axle-tree or for letting it down again, the click *e* is raised out of the notches by one hand applied to the handle of the light arm *i*, while the other hand regulates the motion of the lever bar.